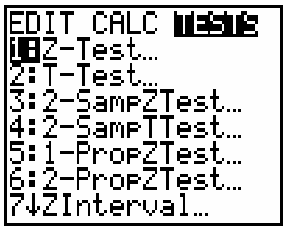
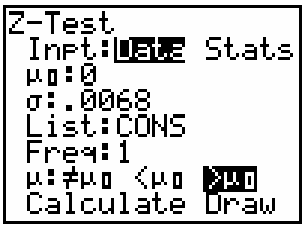
TI-83 & TI-84: Hypothesis Testing for One-Sample Mean with σ Known

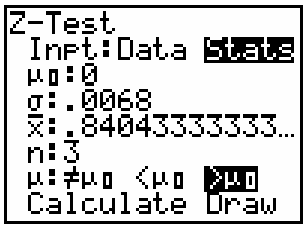
The following pages contain some instructions on the usage of the TI-83/83 Plus graphing calculator.
The example used below is taken out of David Moore's text titled "The Basic Practice of Statistics, 2nd Edition".

Example#6.13 Executives' blood pressures p. 330: The National Center for Health Statistics reports that the mean systolic blood pressure for males 35 to 44 years of age is 128 and the standard deviation in this population is 15. The medical director of a large company looks at the medical records of 72 executives in this age group and finds that the mean systolic blood pressure in this sample is $\bar{x} = 126.07$. Is this evidence that the company's executives have a different mean blood pressure from the general population? As usual in this setting we make the unrealistic assumption that we know the population standard deviation. Assume that executives have the same population standard deviation $\sigma=15$ as the general population of middle-aged males.

Press STAT. Press ▶ two times to scroll right to the TESTS menu option. At this point, your screen should look like the screen on the left given below. Press ENTER to select **1:Z-Test** and go into the STAT TESTS menu screen. At this point, your screen should look like the screen in the middle given below with the cursor blinking over the **Data** input option. You may possibly have different numbers.



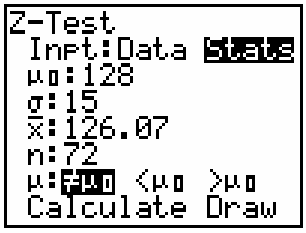


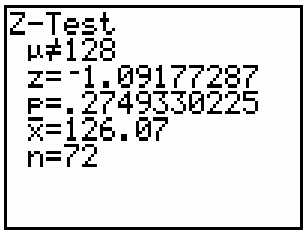


While the cursor blinking over the **Data** input option, press ▶ to move the cursor over to the **Stats** input option. Press ENTER to select that option. At this point, your screen should look like the screen on the right given above with the cursor blinking over the **Stats** input option. You may possibly have different numbers.

Press ▼ to scroll down to **μ_o:**, then type in 128 for the value of **μ_o**, which is the null hypothesis. Press ▼ to scroll down to **σ:**, then type in 15 for the value of the population standard deviation. Press ▼ to scroll down to $\bar{x}$**:** Type in 126.07 for the value of the sample mean. Press ▼ to scroll down to n**:** Type in 72 for the value of the sample size. Press ▼ to move the cursor down to **μ:≠μ_o <μ_o >μ_o**. Since the alternative hypothesis for this example is a two-sided alternative hypothesis, scroll over to the **≠μ_o**

option and press ENTER to select that option. Press ▼ to move the cursor down to **Calculate** option.
At this point, your screen should look like the screen on the left given below with the cursor blinking over the **Calculate** option.





Press ENTER to select the **Calculate** option. Your calculated result screen should look like the screen on the right given above.

The above computed P-value suggests that the observed $\bar{x}$ = 126.07 does not give good evidence against H_o. Therefore we conclude that the mean systolic blood pressure of executives does not differ from the other middle-aged males.

We could also draw the standard normal distribution curve with the observed value of z and the computed P-value indicated by the shaded regions of the curve.
Press STAT. Press ▶ two times to scroll right to the TESTS menu option. Press ENTER to select **1:Z-Test** and go into the STAT TESTS menu screen. Scroll all the way down to the **Calculate Draw** option. Press ▶ to move the cursor over the **Draw** option. Press ENTER to select this option. Your screen should look like the screen given below.